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ivisection

amphlet

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Clarke, John Henry Monkey's Brains Once More — Schaefer vs. Ferrier

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B. Vide "Prof Ferrier's Experiments on Monkeys' Brains"

FOR THE PROTECTION OF ANIMALS FROM VIVISECTION.

MONKEYS' BRAINS ONCE MORE.

SCHAEFER v. FERRIER.

By J. H. CLARKE, M.D.

(*Reprinted from* The Zoophilist, *April*, 1888.)

The monkey has little cause for rejoicing in the fact that, of all animals, it comes nearest to man in the conformation of its brain and skull. The modern school of physiologists, who look upon their science as if it were nothing more than applied mechanics, find in the brains of monkeys the most convenient material for submitting the problems of human brain physiology to the test of experiment.

England possesses an unenviable pre-eminence in the vivisection of the monkey; and, singularly enough, England has been the first to proclaim the existence of a close kinship between monkeys and man. It is somewhat "less than kind" on the part of Darwin and his co-religionists (if we may so term them), who worship Evolution (with a large E), after proving that the monkey is man's cousin (several thousand times removed) to maintain the right of man to vivisect him. We suppose that if the conditions were reversed—if monkeys had the right-conferring might to vivisect man—the physiologists would raise no objection, provided they were not themselves the victims.

Vivisection
Pamphlet

The name of Professor FERRIER is indissolubly connected with the vivisection of monkeys. He was among the first of physiologists to make experiments on monkeys' brains. All readers of THE ZOOPHILIST have heard of the mutilated monkeys he exhibited at the International Medical Congress, held in London in 1881; and they will scarcely need to be reminded of what followed that exhibition. When those monkeys were experimented on, Dr. FERRIER had no license. Both the *Lancet* and the *British Medical Journal* attributed the experiments to Dr. FERRIER. Dr. FERRIER was summoned at the instance of the Victoria Street Society, and the summons was heard at Bow Street. The summons was dismissed; the reporters, who had attributed the experiments to Dr. FERRIER in the journals, swore, or were prepared to swear, that not Dr. FERRIER, but Dr. GERALD YEO (who did possess a license) was the experimenter. This, as Dr. FERRIER'S counsel, Mr. GULLY, observed in never-to-be-forgotten words, was "accurate enough for scientific purposes." Four years after this occurrence, Dr. FERRIER published, in the Philosophical Transactions of the Royal Society for 1884, an account of the same experiments. In this account he claims that he himself performed them, and that he was assisted in the performance of them by Dr. GERALD YEO.

It is important to recall this piece of prevarication, because it will be seen from what follows that this kind of scientific "accuracy" is characteristic not only of the reporters of the experiments, but of the experiments themselves. We have heard much of late years about these experiments of Dr. FERRIER'S, and how they have enabled himself and others to make out exactly where diseases in the brain were situated. We have always disputed the correctness of these assertions, and one of our reasons for so doing has been the want of agreement among physiologists themselves as to the correctness of Professor FERRIER'S observations and results.

First among his critics were HITZIG, MUNK, and HERMANN, in Germany; after them came LUCIANI and TAMBOURINI, in Italy; and lastly comes Dr. SCHAEFER, in England.

The most distressing feature in these experiments is this, there is no finality in them; the offering up of one victim on the altar of science necessarily entails the offering up of many more. Of course, no competent physiologist could accept Professor FERRIER's statements without subjecting them to the test of experiment, and this entails the indefinite multiplication of vivisected monkeys. Among those who thus submitted them to test was Dr. SCHAEFER, and it will give a better idea of what that testing means if I quote his own words. In the January number of *Brain*, *a* (quarterly) *Journal of Neurology*, is an article by Dr. SCHAEFER, entitled: *Experiments on special sense localizations in the cortex centre of the monkey*, which opens in this way:—

"In the long series of experiments upon the monkey's brain with which I was engaged with Mr. VICTOR HORSLEY *during more than two years*," &c.

This will give our readers an idea of what these experiments entail when once started. We should expect that two years of experiment would be sufficient to settle all disputed points, but this is by no means the case. "With regard to vision," says Dr. SCHAEFER, "our experiments were not conclusive." Professor FERRIER maintained that the one particular fold or "convolution" of brain substance, called the "angular gyrus" was the seat of the function of seeing, and that another portion, the "occipital lobe" had also something to do with it, but in a subordinate way. MUNK contested these assertions. During their two years of experiments Drs. SCHAEFER and HORSLEY only made four upon these regions; and they found when they came to examine the brains of the monkeys after they had died that they might just as well have spared them, for they had failed to remove the whole of the "occipital lobe," around which the contest was taking place. Of course, therefore, "it became necessary to pursue further enquiries in order to test" the accuracy of MUNK's statement—the converse of FERRIER's—that the occipital lobe was the seat of the power of vision, and that the angular gyrus had nothing whatever to do with it. These

further "enquiries" (a new name for vivisections) form the subject of Dr. SCHAEFER'S article, and they were made (in the physiological laboratory of University College, probably, Dr. SCHAEFER being Jodrell Professor of Physiology to the College) in conjunction with Dr. SANGER BROWN, of Chicago.

It is astonishing how much mutilation the brain of monkeys will endure without entailing the death of the creature. There is loss of function, either temporary or permanent, and when the mutilation is extensive, loss of the faculty of enjoying life, but not necessarily loss of life itself. This is a very doubtful advantage to the monkey when it falls into the hands of the physiologist, whatever beneficial purposes it may otherwise subserve. But now to the experiments.

"In one monkey," says Dr. SCHAEFER, "a small, active and intelligent Rhœsus, we destroyed, as completely as we could from the surface, by the actual cautery the grey matter of one angular gyrus. We tested the sight after complete recovery from the anæsthetic, but could discover no defect of vision, nor any loss of movement of the eyelids, nor any anæsthesia of the cornea or conjunctiva [surface of the eye]. When the eye of the same side was closed by plaister, the animal continued to see perfectly well with the eye of the other side, nor could we discover any diminution in the visual field."

For a week the same tests were applied regularly, and failed to show any failure of sight. Then a second operation was performed on the opposite side, and the other angular gyrus was destroyed in the same way, and with the same negative results. "This animal was kept for several months, was examined carefully, not only by ourselves but by many other people, and was exhibited to the Neurological Society at its meeting in their laboratory last winter." These experiments Dr. SCHAEFER regarded as conclusive against FERRIER'S opinion; but to make quite certain, he operated on another monkey, and this time instead of cauterising the gyrus scraped it out to its whole extent and

depth. In this case there was temporary disturbance of vision, but only temporary, the result still not agreeing with Professor FERRIER'S statements. The next step was to remove the *occipital lobe* first on one side, and then on both sides, with the effect, in the former case, of causing "bilateral homonymous hemianopsia," which means blindness of one half of each eye, objects placed so that their images fall on left half of the retina (that being the half affected) of either eye remaining unseen; and in the latter case, in which both lobes were removed, total blindness resulted. Dr. SCHAEFER does not appear to have adopted Dr. FERRIER'S cruel methods of ascertaining whether the animals were actually blind, namely, terrifying them and chasing them about a room till they ran "full tilt" against walls and table-legs. But this did happen in one case: "Brought into a strange room it ran against every obstacle." Generally, other means were adopted, as flashing lights upon the animal when in a dark room, and observing how it found its food by groping and smelling.

Dr. SCHAEFER explains the results obtained by Dr. FERRIER from his vivisections—which are diametrically opposite to those of Dr. SCHAEFER—to be due to the incompleteness of the operations.

Further experiments were made by Drs. SCHAEFER and SANGER BROWN regarding the localisation of the senses of hearing, smell, and taste, and in almost every instance their results contradicted those of Professor FERRIER.

Of course these experiments of Dr. SCHAEFER cannot be regarded as final. They will doubtless have to be tested in their turn. Perhaps he did not use the right species of monkey. In any case we fear it means a multiplication of victims.

And now let us look at these martyrs of science. What becomes of the "active and intelligent" creatures thus ruthlessly mutilated? In one there was produced a "condition resembling idiocy, which was well marked for a few days, but afterwards passed off." A similar condition

was observed in another "subject"—a "large female Rhœsus." Dr. SCHAEFER says :—

"The condition was marked by loss of intelligence and memory, so that the animals, although they received and responded to impressions from all the senses, appeared to understand imperfectly the meaning of such impressions. . . . . Their dispositions also became completely changed; both animals exhibited the utmost greediness, losing all the daintiness which characterises the feeding of monkeys; they also entirely lost their fear of man."

A strange result this last! One monkey, which had a certain portion of its brain destroyed, lost sensation of the whole of the opposite side.

Dr. SCHAEFER, in a foot-note, points out how easy it is to make mistakes about the senses of monkeys :—

"These two animals" [the two idiotic monkeys referred to above] "were exhibited to the Neurological Society, and a Committee of that Society was appointed to examine them. Another monkey, which was erroneously believed to have been submitted to the same operation (removal of both superior temporal gyri), and a fourth, which had been subjected to no operation at all, were also put before the members of the Committee. No doubt was raised as to the hearing of the first two" [the hearing of all four was actually unimpaired, though, according to Dr. FERRIER, the first two ought to have been deaf] ; "but one member of the Committee thought that the third, and another member that the fourth, was totally deaf! This I mention to illustrate the difficulty which even skilled observers, unacquainted with the habits and disposition of the individual animals, experience in deciding the question of the possession or loss of hearing in monkeys."

Regarding some of Professor FERRIER'S experiments and conclusions as to the sense of taste of monkeys, Dr. SCHAEFER makes this criticism :—

"The animals lived but a short time, and were in an entirely abnormal condition when tested, nor was the testing performed with purely sapid substances, but with acid and aromatic articles."

From these little by-remarks it is not difficult to understand how hard a matter it is to get experimenters to agree. No two animals are exactly alike; no two experimenters operate in precisely the same way; and no two observers see the same phenomena in exactly the same light.

In the same number of *Brain*, which contains Dr. SCHAEFER's article, is a review of the great work on *The Brain considered Anatomically, Physiologically, and Philosophically*, by the illustrious EMANUEL SWEDENBORG, edited by Dr. R. L. TAFEL. From this review it appears that SWEDENBORG possessed a knowledge of the anatomy and physiology of the brain which was wonderfully exact, and so far in advance of any possessed by the physiologists of his time that only in the light of the most recent discoveries is it becoming plain how exact his knowledge and insight were.

"Our own opinion," says the reviewer—"after time has been allowed for recovery from the shock of supposing it possible that a metaphysician, an ontologist, or theologian, could, by sheer insight and force of inductive reasoning, teach anything whatever to anatomists and physiologists regarding things in their department—undoubtedly is that SWEDENBORG and his editor have proved completely that the pituitary gland is a gland engaged in the elaboration of blood, whatever else it may be; and that, in the other things which he says about it, even if he has not proved them, he has put a strong case for respectful consideration." Further on, we read: "It is surely remarkable that SWEDENBORG's views should have led him to expect that a cavity not yet known to exist would, in the future, be discovered; and that his anticipation should be verified."

For SWEDENBORG's views and teachings of anatomy we cannot answer, but we venture to say this, that if SWEDENBORG's faith, devoutness, and humility were brought to the study of Physiology and Anatomy now, instead of the cold, proud, atheistic spirit that distinguishes modern investigators, a higher order of knowledge would take the place of the confusion that now prevails, and there would be an end to Physiological cruelty.

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